

Vol. VIII, Part 3.

Nos. 185-255.

# HELMINTHOLOGICAL ABSTRACTS

*incorporating*  
BIBLIOGRAPHY OF HELMINTHOLOGY  
For the Year 1939.



IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY  
(HELMINTHOLOGY)

Winches Farm, Hatfield Road,  
St. Albans, England

*December, 1939*

Digitized by the Internet Archive  
in 2024

# HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY  
FOR THE YEAR 1939.

Vol. VIII, Part 3.

## 185—American Journal of Hygiene. Section D. Helminthology.

- a. WHITLOCK, J. H., 1939.—“Studies upon *Strongylus vulgaris*. II. Initial development of apparatus adapted for the study of *Strongylus vulgaris* in vitro.” 30 (1), 1-3.
- b. WHITLOCK, J. H., LINK, R. P. & LEASURE, E. E., 1939.—“Studies upon *Strongylus vulgaris*. III. The influence of hydrogen-ion concentration upon the longevity of *Strongylus vulgaris* in vitro.” 30 (1), 5-14.
- c. GRAHAM, G. L., 1939.—“Studies on *Strongyloides*. IV. Seasonal variation in the production of heterogonic progeny by singly established *S. ratti* from a homogenically derived line.” 30 (1), 15-27.
- d. AUGUSTINE, D. L., 1939.—“Observations on some ascarids from a chimpanzee (*Pan troglodytes*) with experimental studies on the susceptibility of monkeys (*Macaca mulatta*) to infection with the human and the pig *Ascaris*.” 30 (1), 29-33.
- e. ROTH, H., 1939.—“Experimental studies on the course of trichina infection in guinea pigs. III. Immunity of guinea pigs to re-infection with *Trichinella spiralis*.” 30 (2), 35-64.
- f. WEHR, E. E. & CAUSEY, O. R., 1939.—“Two new nematodes (Filarioidea: Dipetalonematidae) from *Rana sphenoccephala*.” 30 (2), 65-68.
- g. CAUSEY, O. R., 1939.—“Development of the larval stages of *Foleyella brachyoptera* in mosquitoes.” 30 (2), 69-71.

(185a) Whitlock has devised a gravity drip apparatus, a special culture dish and drains housed in an incubator inside a small incubator room. By this means he has been able to study *Strongylus vulgaris* in vitro. R.T.L.

(185b) Using various buffer solutions and the quinhydrone electrode, Whitlock and his co-workers have found that the optimum pH range for *Strongylus vulgaris* in vitro is 6.5 to 8.0. There was some indication of a narrower range, 7.0 to 7.5, agreeing closely with the range of caecal contents in maximally infected horses. It is probable that solutions of pH below 5.5 or above 8.5 are lethal. Where worms are living in solutions outside the optimal range, the pH of the solution changes in the direction of the optimum. Time-action curves from the data are sigmoid in form and are made rectilinear by Bliss's method of transformation. Phosphate buffer solutions became lethal when exposed to sunlight. The tonicity of buffer solutions should be standardized with NaCl. B.G.P.



(185c) For 4 years Graham has examined the seasonally changing progeny cycles of 153 parasites each established in a rat by means of a single homogenic *Strongyloides ratti* larva. It was found that maximal numbers of heterogonic offspring were produced in spring and summer (Princeton, N.J.). The monthly distribution of cultures yielding heterogonic offspring was found to be correlated with the monthly mean maximum temperatures. Maximum values of the monthly percentage of cultures containing the free-living adults were recorded 2 to 4 months after major depressions in relative humidity. It is thought that the meteorological conditions affect the parasite through the agency of the host and not as a result of the changes in the environment of the free-living stages, the mode of development being determined from oviposition. W.P.R.

(185d) Two experiments are reported in support of the view that the *Ascaris lumbricoides* found in monkeys represents a distinct strain. R.T.L.

(185e) Roth shows that in the guinea-pig a comparatively small dose of trichina larvae will confer a high degree of resistance to later lethal doses. This defence mechanism is located mainly in the intestine and is directed against the adult sexually mature worms. Only a few can develop to maturity and generally all have disappeared from the intestine in 10 days as against 30 to 35 days in non-resistant animals. The peak of resistance is reached the second week after the immunizing dose was administered and it remains in action for nearly 2 years. A purely intestinal infection of a few trichina worms of one sex only, when no muscular invasion occurs, can cause the development of much immunity to a normal infection. P.A.C.

(185f) *Foleyella brachyoptera* n. sp. and *F. dolichoptera* n. sp. are described from *Rana sphenoccephala* in Florida. A key is given for the 4 American species. R.T.L.

(185g) *Foleyella brachyoptera* of the frog develops in *Aëdys aegypti*, *Culex pipiens* and *C. fatigans*. R.T.L.

#### 186—American Journal of the Medical Sciences.

- a. BRADY, F. J. & WRIGHT, W. H., 1939.—“Studies on oxyuriasis. XVIII. The symptomatology of oxyuriasis as based on physical examinations and case histories on 200 patients.” 198 (3), 367-372.

(186a) Brady & Wright studied the symptomatology of 200 cases of oxyuriasis. This series of cases showed that neither anaemia, enuresis nor an increase in the number of eosinophils in the blood were attributable to pinworm infestation, but that after treatment many infested children showed gains in weight, improvement in colour and the disappearance of dark circles under the eyes. M.R.Y.

#### 187—American Journal of Public Health.

- a. LICHTERMAN, A. & KLEEMAN, I., 1939.—“Detection of Trichinella infestation in hogs by the intradermal test.” 29 (10), 1098-1102.  
b. SCHWARTZ, B., 1939.—“Zoölogical problems relative to meat inspection and their bearing on public health.” 29 (10), 1133-1139.

(187a) Lichterman & Kleeman find that the intradermal test is very useful for the detection of trichinosis in pigs. There was an error of 3% in detection but most of the false readings were in non-trichinous pigs which gave positive reactions. Only one infected pig gave a negative reaction and the authors think this was due to a faulty technique, a thick epidermis having made correct injection difficult. P.A.C.

(187b) Cysticerci in meat that has been chilled for 21 days were formerly thought to be killed, but as Schwartz points out recent work has shown that some may survive even 41 days in chilled meat, and the U.S. regulations have therefore been amended. Freezing at  $-10^{\circ}$  to  $-8^{\circ}\text{C}$ . for 6 days is, however, satisfactory. Briefly reviewing recent knowledge of the incidence of *Trichinella* in man, pig, and pork products in the U.S.A., he shows that out of 966 pork products, not specially processed to destroy *Trichinella*, 480 were infected, but in 435 cases the parasites were dead. About 1% of grain-fed pigs and up to 10% of garbage-fed pigs are infected. B.G.P.

### 188—American Journal of Tropical Medicine.

- a. CHANDLER, A. C., 1939.—“The nature and mechanism of immunity in various intestinal nematode infections.” 19 (4), 309-317.
- b. THOMEN, L. F., 1939.—“The latex of ficus trees and derivatives as anthelmintics. Historical account.” 19 (4), 409-418.
- c. SWARTZWELDER, J. C., 1939.—“Clinical *Trichocephalus trichiurus* infection. An analysis of eighty-one cases.” 19 (5), 473-481.

(188a) Chandler recognises 2 phases of immunity in nematode infections of the intestine; (i) a general parenteral immunity, stimulated mainly by metabolic products of the larvae during parenteral migration or mucosal burrowing; (ii) local intestinal immunity due to metabolic products of adults. In worms which feed on mucous membrane the intestinal immunity is important and causes a powerful and rapidly developing resistance to re-infection. Against blood suckers like *Haemonchus* and hookworms there is no effective local immunity but reaction depends on the development of parenteral immunity after long-continued re-infection. R.T.L.

(188c) 81 uncomplicated clinical cases of whipworm infections are analysed. The most frequent symptoms were abdominal pain, vomiting, constipation, fever, distension and flatulence, headache, backache, loss of weight and anorexia. Intestinal parasitism and chronic appendicitis were the commonest diagnosis. The maximum eosinophil count was 24%, the average was 4.2%. R.T.L.

### 189—Annales d'Anatomie Pathologique.

- a. DÉVÉ, F., 1939.—“Une récente observation islando-canadienne venant appuyer la doctrine de l'unité de l'échinococcose.” 16 (1), 53-62.
- b. VERGOZ & NICOLAÏ, J., 1939.—“Migration pariétale d'un kyste hydatique du lobe droit du foie.” 16 (2), 217-220.

(189a) Dévé is of the opinion that cystic and alveolar hydatid are merely different manifestations of the same parasite. He is unable to advance any reason why the parasite should sometimes assume the alveolar form. P.A.C.



## 190—Annales de Parasitologie Humaine et Comparée.

- a. MANDOUL, R., 1939.—“Recherches récentes et opinions nouvelles sur la toxicité des helminthes.” 17 (3), 187-192.
- b. GALLIARD, H. & NGUYEN HUU PHIEM, 1939.—“Sur la périodicité dans la filariose à propos d'un cas d'infestation par *Filaria malayi*.” 17 (3), 193-198.
- c. ERHARDT, A. & DENECKE, K., 1939.—“Recherches de chimiothérapie sur la strongyloïdose des rats.” 17 (3), 199-205.
- d. ERHARDT, A. & DENECKE, K., 1939.—“A propos de la strongyloïdose des chats.” 17 (3), 206-208.
- e. DOLLFUS, R. P., 1939.—“Distome d'un abcès palpébro-orbitaire chez une panthère. Possibilité d'affinités lointaines entre ce distome et les Paragonimidae.” 17 (3), 209-235.
- f. GALLIARD, H., 1939.—“Recherches sur l'étiologie de la distomatose hépatique au Tonkin.” 17 (3), 236-244.
- g. CALLOT, J., 1939.—“Particularités biologiques de la métacercarie de *Posthodiplostomum cuticola* (von Nordmann).” 17 (4), 332-335.
- h. MAO, C. P., 1939.—“Oxyures d'*Heterocephalus glaber* Rüppell d'Abyssinie. Révision du genre *Wellcomeia* Sambon 1907.” 17 (4), 336-354.

(190a) Mandoul has examined biochemically a tri-chlor-acetic acid extract of *Parascaris equorum* which is toxic to guinea-pigs. It contains no albuminoids or globulins, and cannot be compared with bacterial exotoxins or amino-acids. He suggests that it may have a polypeptid nature but this is not yet proved. *Moniezia expansa* yields up a similar substance but similar experiments with *Fasciola hepatica* were negative. P.A.C.

(190b) Galliard & Nguyen studied the microfilarial periodicity of a case with *Mf. malayi* infection at Hanoi over a period of 8 months. The subject was one who normally remained awake during the night and slept during the day. From the variations exhibited by the periodicity curves obtained on several occasions in conjunction with observations on the periodicity of both *Mf. bancrofti* and *Mf. malayi* on other hospital inmates, the authors conclude that the ill-defined periodicity of *Mf. malayi* is not really a characteristic of this species. J.J.C.B.

(190c) Erhardt & Denecke have studied *Strongyloides ratti* for the purpose of estimating anthelmintic efficiency. After a period of high fertility the egg output of *S. ratti* fell to a fairly even level from the 30th to the 46th day after skin infection. During this period the daily egg output per female worm varied from 175 to 1,000. Thirty-three days after infection 5 rats were given “Bédérmine,” a 14% solution of Ascaridol and carbon tetrachloride (in the proportion of 1:6) in castor oil, 5 c.c. per kg. Nine days later the rats were killed and the number of worms counted. The anthelmintic was found to be without effect. W.P.R.

(190d) Erhardt & Denecke have examined the egg output of an undescribed species of *Strongyloides* from the cat. Eggs were found in the faeces 7 days after skin infection. The egg output rose till the 15th day, after which it became extremely irregular. The number of eggs laid per female worm in the one cat examined averaged more than 263 per day. W.P.R.

(190e) Dollfus describes in considerable detail the morphology and histology of *Achillurbainia nouveli* n. g., n. sp., a large new trematode from

the black panther *Felis pardus melas* which cannot be placed in any known group and for which the family Achillurbainiidae is proposed. Attention is drawn to the heterogeneous characters of the genera of Odhner's family Troglotremitidae.

R.T.L.

(190f) From an examination of molluscs in the Tonkin region Galliard concludes that *Bithynia chaperi* is the important local intermediary for *Clonorchis sinensis*. On the basis of finding cercariae in a single *Melania tuberculata*, out of 250 examined, he considers that this snail may also be an intermediary. The restriction of clonorchiasis in Tonkin to the Delta is in accord with the distribution of *B. chaperi*: the scarcity of clonorchiasis in the north of Annam, where *B. chaperi* abounds, is due to absence of the raw fish diet. The 2nd intermediaries are probably *Culter brevicauda* and possibly *Carassius auratus* and *Anabas scandens*.

B.G.P.

(190g) Callot finds the metacercaria of *Posthodiplostomum cuticola* encysted in cyprinids to be very resistant to putrefaction or salinity, but killed rapidly by freezing. It will survive up to 60 days in certain physiological media, and can be successfully grafted into the muscles of some other fishes, e.g., perch and carp. When kept for 48 hours in physiological saline at 37°C. some of the encysted metacercariae showed considerable development of the genital organs.

E.M.S.

(190h) Mao describes *Heterakis spumosa* and *Wellcomia hilgerti*, apparently the first nematodes recorded from the rodent *Heterocephalus glaber*. In a review of the genus *Wellcomia* he describes specimens from the hedgehog, *Erethizon epixanthum*, from the United States, which were labelled as *W. evoluta*. For these he revives the name *W. evaginata* (Smith, 1908) restricting the use of *W. evoluta* to von Linstow's insufficiently described material from a Malayan rodent. *Wellcomia mitchelli* Sambon and *W. decorata* Travassos are probably synonyms of *W. evaginata*.

E.M.S.

### 191—Archiv für Experimentelle Pathologie und Pharmakologie.

- a. SCHLEGEL, H., 1939.—“Über arekanussaltige Wurmmittel.” 192 (4/5), 389-404.

(191a) As a result of his investigations on the toxicity of 8 anthelmintics containing arecolin, Schlegel comes to the conclusion that such drugs are dangerous and should be obtainable by prescription only. This alkaloid, and the associated Guvacolin, appear to be rapidly absorbed in the small intestine; the paucity of records of toxic effects is probably due to the fact that castor oil (a purgative directly acting on the small intestine) is usually also given.

B.G.P.

### 192—Australian Veterinary Journal.

- a. GORDON, H. McL., 1939.—“The efficiency of copper sulphate and carbon tetrachloride against *Haemonchus contortus* in adult sheep.” 15 (3), 118-120.  
 b. PULLAR, E. M., 1939.—“The fox (*Vulpes vulpes* L. 1758) as a definitive host of *Taenia ovis* (Cobbold 1869) Ransom 1913.” 15 (3), 123-125.  
 c. GORDON, H. McL., 1939.—“A note on the experimental transmission of *Cysticercus ovis*.” 15 (3), 125-126.  
 d. EDGAR, G., 1939.—“The anthelmintic efficiency of ‘Lentin’ against the more important internal parasites of sheep.” 15 (4), 172-176.



(192a) Gordon finds that a dose of 2 ml. of carbon tetrachloride in 3 ml. of liquid paraffin is very effective against *Haemonchus contortus* in adult sheep. The dose of copper sulphate usually prescribed in Australia for adult sheep is 1 fluid oz. of a 4% solution. This he finds unsatisfactory but 2 oz. (60 ml.) of the same strength of copper sulphate is highly efficient. It may be replaced by 1 oz. of an 8% solution to reduce bulk. R.T.L.

(192b) The comparative rarity of adult *Taenia ovis* in the dog is difficult to reconcile with the frequency of *Cysticercus ovis* in sheep. Pullar has found 3 natural infections in the fox near Stawell in Victoria, Australia. R.T.L.

(192c) Gordon has infected a dog with *Taenia ovis* by feeding it experimentally with *Cysticercus ovis*. Segments subsequently fed to 2 young sheep resulted in gross infestation, most of which proved to be degenerated at the autopsy 5 months later. R.T.L.

(192d) Lentin, according to Edgar's tests, is devoid of anthelmintic efficiency against *Haemonchus contortus*, *Trichostrongylus* spp. and *Oesophagostomum columbianum* in sheep. It is highly toxic to animals in poor condition. R.T.L.

### 193—Beiträge zur Klinischen Chirurgie.

- a. PARASKEVAS, M., 1939.—“Beitrag zur Kenntnis des Echinokokkus der Bauchspeicheldrüse.” 169 (2), 265-275.

### 194—Biological Bulletin.

- a. MARTIN, W. E., 1939.—“Studies on the trematodes of Woods Hole. II. The life cycle of *Stephanostomum tenue* (Linton).” 77 (1), 65-73.

(194a) *Stephanostomum tenue* develops in the marine snail *Nassa obsoleta*, the cercaria encysts in a fish *Menidia menidia notata*. Although the adults develop experimentally in the puffer *Spherooides maculatus*, Martin is of opinion that the natural host is probably the striped bass *Roccus lineatus*. R.T.L.

### 195—Bollettino dell'Istituto Sieroterapico Milanese.

- a. STARKOFF, O., 1939.—“Nuovi metodi per la preparazione di platelminti.” 18 (4), 218-224.

(195a) Starkoff recommends Van Gieson's picrofuchsin stain for *Fasciola hepatica*, and Grübler's Lichtgrün for the gravid segments of tapeworms. In the latter case, the embryophores within the uterus can be stained green and, after differentiation, the remainder of the segment is either left colourless or counter-stained with borax carmine. The method entails fixation in Bouin for 12 hours, washing for 2 hours, staining 2 to 4 hours in a saturated solution of Lichtgrün in 95% alcohol, immersion in glacial acetic 2 to 4 hours, prolonged washing, differentiation in 10% caustic potash for a few seconds, thorough washing, counter-staining, dehydrating, clearing, and mounting. B.G.P.

### 196—British Medical Journal.

- a. LEWIS, J. T., 1939.—“Hydatid cyst simulating enlargement of the prostate gland.” Year 1939, 2 (4103), p. 448.



197—Buletinul Asociației Generale a Medicilor Veterinari din România.

- a. POPESCU-BARAN, M., 1939.—“Nouvelles recherches sur l'*Onchocerca bovis* chez les bovidés de France. Localisations synoviales.” 51 (5/6), 304-308.

(197a) [For abstract of this paper see Helm. Abs., Vol. VIII, No. 101j.]

198—Bulletin de l'Académie de Médecine.

- a. SERGENT, E., FOURESTIER, M. & JIMENEZ GALLIANO, E., 1939.—“Le virage de la réaction de Casoni après une deuxième ou plusieurs intradermo-réactions.” 121 (5), 180-185.  
b. LECERCLE, 1939.—“Pancréatite aiguë hémorragique et ascaride.” 121 (9), 342-344.

(198a) Sergeant and his co-workers refer to 3 patients who were examined for hydatid cyst by means of the intradermal reaction, using hydatid fluid as antigen. The first tests were negative but in some way sensitized the host so that later tests were positive. In each case no hydatid was present. They draw attention to the need for confirming such a diagnosis by means of other tests, for example, by complement fixation. P.A.C.

199—Bulletin of the Naval Medical Association, Japan.

- a. ICHINOSE, H., 1939.—“Examination of parasite eggs in feces of primary school children and naval men.” 28 (1), 50-59. [In Japanese: English summary pp. 6-7.]

(199a) From faeces examinations, Ichinose found that 854 or 80% of 1,061 children and 132 or 66% of 200 naval men were infected with helminth parasites. The incidence of the eggs of each parasite according to the respective groups was *Ascaris* 63% and 34%, *Trichuris* 40% and 30%, *Ancylostoma* 20% and 18%, *Trichostrongylus* 8% and 4%, *Oxyuris* 4% and 0.5%, *Metagonimus* 0.5% and 4.5%. Among the children there was one case of *Hymenolepis* and one of *Clonorchis*. M.R.Y.

200—Bulletin. Purdue University Agricultural Experiment Station, Indiana.

- a. FICHT, G. A., 1939.—“Root-knot nematode of tomatoes in relation to the Indiana canning crop.” No. 434, 15 pp.

(200a) A brief description of the life-history of the root-knot nematode and the symptoms produced by it in the tomato plant is followed by detailed comparative figures of the yields of different grades of fruit from nematode-infested and clean plants. It is shown that infected plants set a smaller percentage of fruit and produce smaller fruit and less total yield than uninfected, though, in a dry season, a greater percentage of set fruit ripened, owing to premature defoliation caused by the impaired root-system. No evidence of the overwintering of the nematode in the soil out-of-doors in northern Indiana was found. Infection is introduced by plants imported

from the south for setting. It is recommended that they should be examined on planting and the infected ones rejected, and that rotation with resistant crops should be practised.

M.T.F.

## 201—Bulletin de la Société de Pathologie Exotique.

- a. RICHET, P., 1939.—“La volvulose dans un cercle de la Haute Côte d'Ivoire. Ses manifestations cutanées et oculaires.” 32 (3), 341-355.

(201a) Richet draws attention to a large focus of human onchocerciasis in the Upper Volta region of the Ivory Coast. Cutaneous and ocular complications of the disease occur to a considerable extent and the nature of these is described. The author is of the opinion that the presence of the microfilariae of *O. volvulus* is not sufficient to account for the skin and eye troubles, but that allergic phenomena due to a microfilarial antigen seem to have an important rôle in causing them.

J.J.C.B.

## 202—Canadian Journal of Comparative Medicine.

- a. CAMERON, T. W. M., 1939.—“The parasitic environment and plan of control.” 3 (8), 211-217.

(202a) In this, the second of a series of articles on the principles of parasitic control, Cameron discusses the factors necessary for the successful development of the parasites in the host. The control measures dealt with are those concerned with the destruction of the eggs and larvae of helminths in manure.

D.O.M.

## 203—Canadian Journal of Research. Section D. Zoological Sciences.

- a. CAMERON, T. W. M., 1939.—“Investigations on trichinosis in Canada. II. A further survey of the incidence of *Trichinella spiralis* in hogs in eastern Canada.” 17 (7), 151-153.
- b. LYSTER, L. L., 1939.—“Parasites of freshwater fish. I. Internal trematodes of commercial fish in the central St. Lawrence watershed.” 17 (7), 154-168.
- c. SWALES, W. E. & FROMAN, D. K., 1939.—“An apparatus for measuring the ‘flash’ thermal death point of microscopic animal organisms and its use with ova of *Ascaris lumbricoides*.” 17 (8), 169-177.
- d. PARNELL, I. W., 1939.—“Studies on the bionomics and control of the bursate nematodes of horses and sheep. VII. The effect of some substances, used in the control of farm and household pests, on the free-living stages of sclerostomes.” 17 (9), 187-204.
- e. GRIFFITHS, H. J., 1939.—“Observations on the bionomics of ova and miracidia of *Fasciola hepatica* Linn., in eastern Canada.” 17 (10), 205-211.

(203a) Cameron reports on the second season of a survey of pigs in eastern Canada for trichina cysts. Of 1,271 samples received none were positive, whereas in 1937 [see Helm. Abs., Vol. VII, No. 91b] 15 were positive. The results of the work of 2 years accordingly shows an incidence of 0.75% in 2,000 pigs.

R.T.L.

(203b) Lyster discusses 16 species of trematodes from 10 species of fish. *Ptychogonimus fontanus* n. sp., from the stomach of *Perca flavescens*,



is the first freshwater form to be included in this genus. *Crepidostomum ambloplitis* and *C. solidum* are reduced to synonymy with *C. cooperi*. Control of the bullhead, *Ameiurus nebulosus*, in hatcheries and spawning beds is suggested by means of the heterophyid, *Acetodextra amiura*, which parasitizes the swim-bladder and in a heavy infection causes death of the host. E.M.S.

(203c) Swales & Froman describe an apparatus for determining the "flash" thermal death points of animal organisms. The time of exposure to the temperature, which latter can be estimated with relative accuracy, may be varied from 0.5 to 0.1 second. An experiment on the single celled ova of *Ascaris lumbricoides* (of porcine origin) showed that exposure to 68°C. for 0.44 second resulted in their all being destroyed. D.F.

(203d) A further series of chemicals has been tested by Parnell to ascertain their effect on the free-living stages of sclerostomes when added to cultures of fresh horse faeces. In order of effectiveness in sterilizing the faeces the chemicals are: para- and orthodichlorobenzene, sodium fluoride, sodium silicofluoride, naphthalene, dichloropentanes, nicotine sulphate, ethylenedichloride, chloroform, carbon tetrachloride, trisodium phosphate, tobacco dust. The 2 first mentioned chemicals will sterilize about 400 times their weight of faeces, whereas the last mentioned only about twice its weight. Pyrethrum powder, derris powder, white hellebore powder, ferric oxide and carbon monoxide were useless as lethal agents. J.W.G.L.

(203e) Griffiths found that fresh *Fasciola hepatica* ova, incubated at 20°C., first hatch in about 14 days, ova stored at 2° to 4°C. for 16 months requiring 24 to 30 days incubation. Culture solutions of 1% copper sulphate, 5% potassium dichromate, 1% ammonium sulphate, and 1% kainit were lethal, at different stages in development. Hatching from normal cultures always occurred late in the morning and was not induced by strong artificial light. Eleven species of molluscs were exposed to infection without result; all were readily attacked by the miracidia but there was no definite sign of chemotaxis. B.G.P.

#### 204—Chinese Medical Journal.

- a. HSÜ, H. F., 1939.—"Studies on the food and the digestive system of certain parasites. V. On the food of liver flukes." 56 (2), 122-130.
- b. BARTSCH, P., 1939.—"A new intermediate host of the Asiatic blood fluke *Schistosoma japonicum* Katsurada." 56 (2), 171-172.

(204a) From a study of the intestinal contents of 4 species of liver-flukes Hsü believes that the food bears an important relationship to their pathogenicity, although size, number, location, length of infection, movement, spines, metabolic products, and eggs may have to be considered also. *Fasciola hepatica* feed chiefly on blood cells. *Dicrocoelium dendriticum* feed on epithelial cells of the ducts, leucocytes and lymphoid cells and red blood corpuscles. He notes that the cephalic glands opening into the oral sucker are well developed. *Clonorchis sinensis* and *Metorchis orientalis* feed mainly on epithelial cells with a certain amount of polymorphonuclear leucocytes and lymphoid cells. Red blood corpuscles are rarely found. All 4 species cause some destruction of bile duct epithelium with subsequent hyperplasia and some increase in connective tissue. Secondary bacterial invasion may

intensify or modify inflammatory processes. In long-standing infection cirrhotic changes occur. R.T.L.

(204b) [This paper is reprinted from J. Wash. Acad. Sci., 29 (4), 173-175. See Helm. Abs., Vol. VIII, No. 138b.]

## 205—Clinica Veterinaria.

- a. PEGREFFI, G., 1939.—“L'uso di alcuni cloroderivati degli idrocarburi (tetracloruro di carbonio ed esacloretano) nella cura della distomatosi epatica.” 62, 113-120; 172-178.

(205a) Against *Fasciola hepatica*, Pegreffì recommends carbon tetrachloride in oil, given to sheep and goats *per os* in a dose of 1 c.c. by syringe (preceded and followed by fasts of 12 and 3 hours respectively), and to cattle by intra-ruminal injection in a dose of 4.5 c.c. For cattle he also recommends hexachlorethane *per os* at 20 to 22 g. per quintal of live weight. Carbon tetrachloride has little effect against immature *F. hepatica* and *Dicrocoelium dendriticum*; advanced pregnancy is not a contra-indication to its use in oily solution. The treatment of 1½ million sheep and goats and 10,000 cattle in Sardinia by these methods has economically solved the distomiasis problem there. B.G.P.

## 206—Comptes Rendus des Séances de l'Académie des Sciences.

- a. ROUBAUD, E. & DESCHIENS, R., 1939.—“Sur les agents de formation des dispositifs de capture chez les hyphomycètes prédateurs de nématodes.” 209 (2), 77-79.

(206a) Water which has been in contact with certain nematodes has the property of inducing the formation of organs of capture by the nematode-ensnaring fungi, *Arthrobotrys*, *Dactylella* and *Dactylaria*. Roubaud & Deschiens have investigated the behaviour of these fungi in this respect to a number of organic and other fluids (some bacteriologically sterile and others not) and their findings are set out according to the intensity of the reaction observed. Among the bacteriologically sterile liquids the following may be mentioned: human serum has an intense and human urine a feeble action; body fluid of *Parascaris equorum* a very intense action; egg white, distilled water and isotonic saline have no action. Among bacteriologically non-sterile liquids the two following may be mentioned: extract of human faeces a very intense action; extract of rabbit faeces a feeble action. T.G.

## 207—Comptes Rendus des Séances de la Société de Biologie.

- a. MACHEBOEUF, M. & MANDOUL, R., 1939.—“Tentative d'isolement de la substance toxique contenue dans l'extrait d'*Ascaris megalocephala*. Quelques observations au sujet des propriétés de cette substance.” 132 (23), 124-126.
- b. MANDOUL, R., 1939.—“Recherches sur les propriétés biologiques de la substance toxique contenue chez *Ascaris megalocephala*.” 132 (23), 126-128.
- c. MANDOUL, R., 1939.—“Recherches sur la toxicité des douves.” 132 (23), p. 128.

(207a) Macheboeuf & Mandoul have examined the nature of the toxic principle of a tri-chlor-acetic acid extract of *Ascaris megalocephala*. It is



very unstable to heat and is soluble in alcohol. They suspect it to have a polypeptid nature but have so far been unable to prove this chemically.

P.A.C.

(207b) Continuing his experiments on the properties of the toxic substance contained in an extract of *Ascaris megalcephala*, Mandoul was unable to evoke any allergic response in guinea-pigs by means of sub-lethal injections. Such injections did however cause the development of a degree of resistance to later injections. No eosinophilia was induced and precipitation reactions were negative.

P.A.C.

(207c) Mandoul finds that aqueous and tri-chlor-acetic acid extracts of *Fasciola hepatica* contain no substance which is toxic to guinea-pigs. As similar extracts of *Moniezia expansa* gave negative results also, he suggests that the flatworms therefore differ markedly from the round worms, in which toxic substances are known. He refers in this connection to his recent work on *Ascaris megalcephala*.

P.A.C.

## 208—Cornell Veterinarian.

- a. BAKER, D. W., SALISBURY, G. W. & BRITTON, J. W., 1939.—“Control of equine strongylosis. Part I. The effect of natural factors on the development of strongylosis in foals.” 29 (3), 297-308.
- b. BRITTON, J. W., 1939.—“Trichostrongylosis in equines.” 29 (3), 322-330.

(208a) An attempt is made to show the percentage of potential infective larvae available to foals under natural conditions that caused infection. The number of potential infective larvae was worked out by estimating the number of eggs passed out by the mares over the period, and the number of larvae causing infection estimated by the number of worms present in the foals from faecal egg counts. Results indicated that as few as 1 in 52 million potential infective larvae reached maturity in Belgian foals. Factors affecting the development of larvae and their transmissibility together with the parasitic development are discussed.

J.W.G.L.

(208b) Britton records the presence of *Trichostrongylus axei* in 36 out of 50 horses examined. The pathological effect of the worm on the stomach was found to be directly proportional to the number of worms present, and diagnosis in the living animal was best carried out by repeated egg counts and larval cultures. The infection of *T. axei* of equine origin was experimentally transmitted to a 17-months-old Jersey steer.

J.W.G.L.

## 209—Deutsche Medizinische Wochenschrift.

- a. MARX, H., 1939.—“Die chemischen und mikroskopischen Untersuchungen am Krankenbett. V. Darmparasiten.” 65 (1), 28-29.
- b. WIGAND, R., 1939.—“Über Atropin zur Bandwurmkur. Klinisch-parasitologische Beobachtungen III.” 65 (23), p. 923.

(209b) Wigand suggests that the tapeworm scolex, when attached to the intestinal mucosa, acts like a foreign body in stimulating muscular contractions which (in effect) protect the scolex from the action of anthelmintics. This would explain why the scolex is so often not voided. Hence, he recommends giving 1 mg. atropin sulphate 1 to 2 hours before the anthelmintic, in order to counteract this effect.

B.G.P.

## 210—Fukuoka Acta Medica.

- a. OKABE, K., 1939.—“On the trematode cysts of the fresh water fishes in North Manchuria.” 32 (2), 289-296. [In Japanese : English summary p. 19.]
- b. MIYAZAKI, I., 1939.—“Über eine in einer Krabbe (*Sesarma intermedia*) gefundene Metacercarie (wahrscheinlich Metacercarie des *Paragonimus westermanni*). Vorläufige Mitteilung.” 32 (3), 393-398. [In Japanese : German summary p. 28.]
- c. MURATA, H., 1939.—“Experimentelle Studien über den Turnus von *Dirofilaria immitis* (I. Mitteilung).” 32 (4), 690-749. [In Japanese : German summary pp. 40-41.]
- d. MIYAZAKI, I., 1939.—“Ueber einen Saugwurm, der in zwei Arten Krabben, *Sesarma intermedia* und *Sesarma dehaani* inzystiert.” 32 (5), 887-896. [In Japanese : German summary pp. 50-51.]
- e. MURATA, H., 1939.—“Immunologische Studien über *Dirofilaria immitis*.” 32 (5), 945-972. [In Japanese : German summary p. 54.]

(210a) Okabe has found the cysts of *Metagonimus yokogawai* in 6 species of fish in North Manchuria, viz., *Culter erythropterus*, *Siniperca chuatsi* (food fish, served raw), *Parabramis pekinensis*, *Ophicephalus argus* (food fish, served raw), *Pseudorasbora parva* and *Hemibarbus maculatus*. Clonorchis cysts have previously been reported from *Ophicephalus argus* in one district. The author urges the discontinuance of the habit of eating raw fish. Other cysts reported are those of *Metorchis orientalis*, *Echinochasmus perfoliatus* and *Centrocestus* sp. E.M.S.

(210b) Larvae from the liver and gills of the crab, *Sesarma intermedia*, were fed to a cat and to a rat, from the body cavities of which immature specimens of *Paragonimus westermanni* were later recovered. The larvae and young flukes agree with previous descriptions, but the larval cysts are somewhat different. E.M.S.

(210c) Murata determined the normal periodicity of the larvae of *Dirofilaria immitis* in the peripheral blood of infected dogs, then destroyed this periodicity by confining the dogs in a darkened room. By means of quartz-lamp radiation for several hours each evening he was then able to establish a new periodicity, especially in winter. He concludes that ultra-violet rays are the controlling factor in this phenomenon, which is more clearly marked when these rays are most abundant. E.M.S.

(210d) Miyazaki found a new metacercaria in the liver of two species of crab, *Sesarma intermedia* and *Sesarma dehaani*. The trematodes were enclosed in a double cyst wall and were highly developed. In mice and rats they underwent rapid development, the immature adults being tentatively ascribed to the genus *Levinseniella*. E.M.S.

(210e) Murata finds that subcutaneous injection of extracts of *Dirofilaria immitis* has no effect on the number and appearance of microfilariae in the circulating blood of infected dogs. A transfusion of infected blood of dogs was given to a number of rabbits. Though microfilariae remained in the blood of previously immunized rabbits for a shorter time than in control animals there was no appreciable difference in the vitality of the larvae. P.A.C.



## 211—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. PRAWIROHARDJO, S., 1939.—“ Infectieproeven met *Microfilaria bancrofti* bij verschillende muskietensoorten in Batavia.” 79 (27), 1691-1705.
- b. SANDGROUND, J. H., 1939.—“ On the occurrence of human echinostomiasis in Java. II. The discovery of an endemic focus of infection with *Echinostoma ilocanum* and the elucidation of the parasite's lifecycle.” 79 (28), 1722-1734.

(211a) In Batavia the efficient vectors of *Filaria bancrofti* are *Culex fatigans*, *Anopheles ludlowi* and *A. subpictus*. Probably efficient are *A. fuliginosus*, *A. vagus*, *A. barbirostris typicus* and *A. tessellatus*. Of little importance are *Culex sitiens*, *C. whitemorei* and *C. fuscocephalus*. Nine other mosquitoes are listed as of no importance as vectors. R.T.L.

(211b) Sandground reports 22 cases of human infection with *Echinostoma ilocanum* among the inhabitants of the Lenteng Agoeng Rural Colony for the Insane near Batavia. A large proportion of field rats were found to be naturally infected. The planorbid *Anisus convexuscultus* is the first intermediary. The metacercariae are found encysted in *Lymnaea rubiginosa brevis*, *Viviparus javanicus* and *Pila conica*. 2 to 4.5 c.c. of tetrachlorethylene caused the evacuation of 13 to 270 worms from 11 of the patients. R.T.L.

## 212—Hygeia. Chicago.

- a. WRIGHT, W. H., 1939.—“ The pestiferous pinworm.” 17 (3), 236-237, 282.

(212a) The writer, realizing the importance of the high incidence of pinworm in certain groups studied in America, has given a popular account of the life-cycle, means of infestation, symptoms and control. M.R.Y.

## 213—Indian Journal of Medical Research.

- a. BASU, B. C. & RAO, S. S., 1939.—“ Studies of filariasis transmission.” 27 (1), 233-249.

(213a) Exposure of laboratory bred *Culex fatigans* experimentally infected with *Filaria bancrofti* to different combinations of temperature and humidity shows that both these factors play an important part in transmission to man. The optimum condition would appear to be 80°F. and 90% humidity, for 100% of the mosquitoes used were infected. At 70°F. and humidities below 70% no infection was obtained. At 60°F. and 70% to 100% humidity very few mosquitoes became infected and none at lower humidities with the same temperature. At 100°F. with humidities from 50% to 100% the mosquitoes did not survive. The minimum time taken for complete development and the appearance of the larvae in the proboscis varied with the temperature, viz., at 90°F. 9 days, 80°F. 10 days, 70°F. 20 days, and at 60°F. 47 days. R.T.L.

## 214—Journal of the American Veterinary Medical Association.

- a. RILEY, W. A., 1939.—“ Maintenance of echinococcus in the United States.” 95 (749), 170-172.
- b. CAMERON, H. S. & STEWART, M. A., 1939.—“ Studies on the course of trichostrongyle infestation in sheep.” 95 (749), 177-180.

(214a) A short review of the occurrence of echinococcus in the United States is given by Riley. The native moose (*Alces americanus*) is reported to harbour the cystic stage; 11 out of 21 moose from Minnesota were found to be infected. As a definitive host the timber wolf, *Canis lupus lycaon*, is reported to carry infection; 5 out of 12 carcasses were found to harbour the adult parasite. J.W.G.L.

(214b) Infection of bottle-reared worm-free lambs and one-year-old sheep with *Ostertagia circumcincta* and *Trichostrongylus colubriformis* showed that lambs one week old and sheep at one year old were highly susceptible to infection. Daily egg counts showed that in the lambs a sudden initial peak in egg output occurred but in the older animals the ultimate peak was less rapidly attained. There were daily fluctuations in egg counts and the duration of oviposition was at least one year. J.W.G.L.

## 215—Journal of the Council for Scientific and Industrial Research. Australia.

- a. GORDON, H. McL., 1939.—“A preliminary note on the chemotherapy of oesophagostomiasis of sheep with special reference to the efficiency of Phenothiazine.” 12 (3), 203-206.
- b. GORDON, H. McL. & WHITTEN, L. K., 1939.—“A preliminary note on the anthelmintic efficiency of Phenothiazine against *Haemonchus contortus* in sheep.” 12 (3), p. 207.
- c. ROBERTS, F. H. S., 1939.—“A preliminary note on the treatment of oesophagostomiasis in sheep with Phenothiazine.” 12 (3), p. 208.

(215a) In the present note Gordon summarizes briefly his experiments on the treatment of *Oesophagostomum columbianum* in sheep. He finds that enemata containing sodium arsenite (125 to 250 mg. per 1200 ml. of water) were highly efficient and could be applied on a large scale by using a modified automatic drenching gun. The method is, however, time-consuming and apt to cause death from rupture of the large intestine. With Mönnig's powder mixture of insoluble copper salts following a dose of copper sulphate solution to close the oesophageal groove less than 30% of the cases were benefited. Failure to expel the worms by large doses of sodium sulphate was experienced. Satisfactory results were obtained with Phenothiazine, which is stated to be cheap, tasteless and relatively non-toxic. 0.2 g. per kg. body weight was administered in gelatine capsules. Even single doses of 45 g., and 15 g. on three successive days, produced no obvious ill-effect. R.T.L.

(215b) That Phenothiazine is very effective against *Haemonchus contortus* is demonstrated by the fact that 18 sheep with medium or heavy infestations were found at post-mortem to have no parasites after having been treated with this drug. Doses of 0.3 to 0.75 g. per kg. body weight repeated on 3 successive days were 100% efficacious in 7 sheep, but the drug was not so efficient against *Trichostrongylus* and *Oesophagostomum columbianum*. R.T.L.

(215c) Roberts administered Phenothiazine as a single dose of 4 g. as a suspension in 1 fl. oz. of 4% copper sulphate to 5 grown sheep. Four passed *Oesophagostomum columbianum* and the subsequent egg counts indicated that the results were encouraging. Seven lambs 4 to 5 months old were then given the powder as a suspension in a small quantity of liquid paraffin preceded



by 2 ml. of copper sulphate: the percentage efficiency ranged from 8.8% to 94.7%. Numbers of *Haemonchus contortus* were passed by all the treated lambs and very few were found later at post-mortem. R.T.L.

## 216—Journal of Infectious Diseases.

- a. CAMPBELL, D. H., 1939.—“A polysaccharide fraction from *Cysticercus crassicolis* and its rôle in immunity.” 65 (1), 12-15.
- b. SARLES, M. P., 1939.—“Protective and curative action of immune serum against *Nippostrongylus muris* in the rat.” 65 (2), 183-195.

(216a) When injected into rats the polysaccharide fraction of *Cysticercus crassicolis* induces antibody production, which antibodies however have no protective function. The reason for this may be either that the fraction does not come into contact with the antipolysaccharide antibodies or because it is not of vital importance to the parasite. P.A.C.

(216b) In the case of *Nippostrongylus muris* infection in rats injections of serum from immune animals produce a passive immunity, the manifestations of which are exactly the same as in animals actively immunized by repeated doses of larvae. The degree of immunity depends upon the dosage, the time of inoculation and the activity of the serum itself. The action is however temporary and wears off after a time but the dosage can be so graded as to allow of the development of sufficient active immunity that shall have a marked effect on the course of the infection. If too much passive immunity is produced in the early days of the infection the initial acute peak in egg production is inhibited and later active immunity is not adequately developed. P.A.C.

## 217—Journal of Laboratory and Clinical Medicine.

- a. TSUCHIYA, H., 1939.—“A method of isolating larvae of *Trichinella spiralis* for the preparation of the antigen used for immunologic reactions in trichinosis.” 24 (11), 1207-1208.

## 218—Journal of Parasitology.

- a. HERBER, E. C., 1939.—“Studies on the biology of the frog amphistome, *Diplodiscus temperatus* Stafford.” 25 (3), 189-195.
- b. LINCICOME, D. R., 1939.—“A new tapeworm, *Choanotaenia iola*, from the robin.” 25 (3), 203-206.
- c. THOMAS, L. J., 1939.—“Life cycle of a fluke, *Halipegus eccentricus* n. sp., found in the ears of frogs.” 25 (3), 207-221.
- d. BENNETT, H. J. & HUMES, A. G., 1939.—“Studies on the pre-cercarial development of *Stichorchis subtriquetrus* (Trematoda: Paramphistomidae).” 25 (3), 223-231.
- e. FAUST, E. C. et al., 1939.—“Comparative efficiency of various technics for the diagnosis of protozoa and helminths in feces.” 25 (3), 241-262.
- f. BRACKETT, S., 1939.—“Two new species of strigeid cercariae in lymnaeid snails from the United States.” 25 (3), 263-268.
- g. BEAVER, P. C., 1939.—“The morphology and life history of *Petasiger minidus* Linton (Trematoda: Echinostomidae).” 25 (3), 269-276.
- h. HARKEMA, R., 1939.—“A new species of *Brachylaemus* from the barred owl.” 25 (3), p. 277.

- i. OLSEN, O. W., 1939.—“Schizotaeniasis in muskrats.” 25 (3), p. 279.
- j. MACY, R. W., 1939.—“*Gomphus spicatus* Hagen (Odonata) a new intermediate host for *Prosthogonimus macrorchis* (Trematoda).” 25 (3), p. 281.
- k. STILES, C. W., 1939.—“Early history, in part esoteric, of the hookworm (uncinariasis) campaign in our southern United States.” 25 (4), 283-308.
- l. RANKIN, jr., J. S., 1939.—“Ecological studies on larval trematodes from western Massachusetts.” 25 (4), 309-328.
- m. BRAND, T. VON, 1939.—“Chemical and morphological observations upon the composition of *Macracanthorhynchus hirudinaceus* (Acanthocephala).” 25 (4), 329-342.
- n. WHEELER, N. C., 1939.—“A comparative study on the behavior of four species of pleurolophocercous cercariae.” 25 (4), 343-353.
- o. GRAHAM, G. L., 1939.—“Studies on *Strongyloides*. V. Constitutional differences between a homogonic and a heterogonic line of *S. ratti*.” 25 (4), 365-375.

(218a) In addition to *Helisoma trivolvis*, *H. antrosom percarinatum* and *H. campanulatum smithii* are also intermediate hosts of *Diplodiscus temperatus*. Tadpoles of *Rana clamitans* can be infected when 10 days old. During metamorphosis the flukes migrate from the rectum towards the stomach but when the young frogs eat insects the flukes return again towards the rectum. Changes in the amount and type of food appear to be the main reason for the fluke distribution in the gut of metamorphosing tadpoles.

R.T.L.

(218b) *Choanotaenia iola* n. sp. from *Planesticus migratorius migratorius* violates current concepts of the genus *Choanotaenia* and of the family Dilepididae in possessing cuticular spines on the suckers. In this it resembles *C. infundibulum* which has however cuticular spines on the scolex. The testes in *C. iola* number 13 to 17, in *C. infundibulum* 40 to 60.

R.T.L.

(218c) The embryonated eggs of *Halipegus eccentricus* n. sp. passed in the faeces of *Rana pipiens* hatch when eaten by *Physa sayii crassa*, *P. parkeri*, *P. gyrina* and *Helisoma trivolvis*. The sporocyst produces 8 or more rediae, each of which within a month after the infection of the snail produces 50 or more cystophorous cercariae. These are swallowed by copepods and reach the infective stage free in the coelom in 2 to 3 weeks.

R.T.L.

(218d) In the life-history of *Stichorchis subtriquetrus* from the beaver *Castor canadensis*, a single fully formed redia is produced within the miracidium before the egg hatches. The redia is unusual in possessing a pair of “penetration glands.” Daughter rediae also possess this character. *Fossaria parva* is an experimentally efficient intermediary. The similarity of the life-history to that of the monostome *Typhlocoelum cymbium* points to a possible phylogenetic relationship between certain of the amphistome and the monostome groups.

R.T.L.

(218e) After a careful comparison of 11 different techniques Faust and co-workers recommend a combination of the direct faecal film, either iodine or haematoxylin stained, with zinc sulphate centrifugal flotation for the diagnosis of intestinal protozoa and helminths in the clinical laboratory, and in epidemiological surveys.

R.T.L.

(218f) *Cercaria riponi* n. sp. from *Stagnicola palustris elodes*, and *C. obscuradena* n. sp. from *Fossaria parva* are described by Brackett.

R.T.L.



(218g) *Petasiger nitidus* develops in *Helisoma antrosum percarinatum* as a large-tailed echinostome cercaria. The metacercaria has been found in a number of minnows, and canaries have been experimentally infected in the laboratory.

R.T.L.

(218h) *Brachylaemus mcintoshii* n. sp. is the 8th species of the genus and is described from *Strix varia varia*.

R.T.L.

(218i) A heavy infection with *Schizotaenia variabilis* and *S. americana* is recorded by Olsen but is thought to be an accidental infection in the muskrat.

R.T.L.

(218l) Rankin has studied the distribution and development of 6 cercariae in the snail, *Pseudosuccinea columella*, over a period of one year. The 4 on which most data were obtained are *Echinostoma revolutum* and 3 xiphidiocercariae, *Cercaria holthauseni* n. sp. (? Reniferinae, final host an amphibian), *C. amherstensis* n. sp. (? Plagiorchidae, final hosts amphibians and reptiles) and *C. merchanti* n. sp. (adult *Haematoloechus* sp.). The evidence shows complete host specificity between these infections and those of *Physa gyrina* and *Sphaerium occidentale* in the same pond, furthermore that there is some mechanism to limit development of multiple infections, as these are rare and never involve more than two species of cercariae.

E.M.S.

(218m) In a study of *Macracanthorhynchus hirudinaceus* von Brand finds a number of inorganic ions which are widely distributed among living organisms. Polysaccharides occur in the form of glycogen. Fats were extracted with ether and consisted of phospholipids, saturated and unsaturated fatty acids, glycerol, some unsaponifiable matter and some unrecognizable lipoids. The distribution of both glycogen and fat was examined by differential staining. Glycogen occurs in large quantity in the body and genital musculature, and in the developing larva. Fat occurs in the deep layers of the hypodermis of both sexes and in the female in the ovaries, vagina and uterus.

P.A.C.

(218n) Wheeler has studied the behaviour of freshly emerged *Cercaria vogeli*, *C. opacocarpa*, *C. constrictovesica* and *C. semicarinatae* from the snail, *Goniobasis semicarinata*. Specific differences were observed in the frequency, speed and duration of spontaneous swimming movements, and of responses to shadows. The greatest differences in behaviour were shown by the two most similar species morphologically. None of the species showed any response to a galvanic current of 6 volts.

E.M.S.

(218o) Graham has established homogonic and heterogonic strains of *Strongyloides ratti*. Under similar culture conditions the heterogonic line gave larvae predominantly by indirect development while in the homogonic line development was largely direct. Also the parasites of the heterogonic line were reproductively shorter-lived, reproduced more rapidly and produced more free-living males than the homogonic line. It was considered that these differences showed a constitutional dissimilarity between the two strains.

W.P.R.

## 219—Journal of the Royal Army Veterinary Corps.

- a. LEIPER, J. W. G., 1939.—“Red worms of the horse.” 10 (4), 147-152.

## 220—Journal of the Royal Horticultural Society.

- a. BUDDIN, W., 1939.—“Effect of hot-water treatment on iris bulbs.” 64 (9), 425-428.

(220a) Buddin describes the disease symptoms set up by *Anguillulina dipsaci* in iris bulbs of the varieties “Imperator” and “Wedgewood.” He discusses the effects of hot-water treatment for various lengths of time on “Imperator” bulbs treated in October and shows that 75 minutes at 110°F. effects severe reduction in the number of blooms, 50 minutes a considerable reduction, and 25 minutes a slight reduction. 25 minutes is not long enough to kill the nematodes but 50 minutes to one hour is. The margin between death to the eelworm and damage to the bulb is narrow in treatments carried out in October but the author suggests that the treatment might not be so detrimental with home-grown bulbs treated in August. T.G.

## 221—Journal of the Royal Naval Medical Service.

- a. SHUTE, D. S., 1939.—“Ankylostomiasis—a misleading case.” 25 (4), 422-423.

## 222—Journal of the Rubber Research Institute of Malaya.

- a. BEELEY, F., 1939.—“A nematode pest of roots of cover plants.” 9 (1), 51-58.

(222a) Beeley has found galls due to *Heterodera marioni* on the roots of a number of leguminous plants used as cover crops in the cultivation of rubber in Malay. He describes the galls, indicates how they differ from leguminous root nodules, gives an account of the symptoms caused by the parasite and discusses possible control measures. Some of the cover plants listed are hitherto unrecorded hosts of *H. marioni*. T.G.

## 223—Journal of the South African Veterinary Medical Association.

- a. VILJOEN, N. F., 1939.—“Suggestions for the eradication of cysticercosis-taeniasis.” 10 (3), 115-125.

(223a) [This paper contains the substance of part of Viljoen's monograph on cysticerciasis which appeared in Onderstepoort J. vet. Sci., 9, 337-570, (1937). See Helm. Abs., Vol. VI, No. 585c.]

## 224—Journal of Tropical Medicine and Hygiene.

- a. SWARTZWELDER, J. C., 1939.—“Clinical *Taenia* infection: an analysis of sixty cases.” 42 (15), 226-229.
- b. CAWSTON, F. G., 1939.—“The control of molluscs concerned with disease in man and stock.” 42 (16), 250-251.
- c. AZMY PASHA, S. & ZANATY, A. F., 1939.—“Iron and blood transfusion therapy in *Ancylostoma* anaemia with a preliminary note on bone marrow findings.” 42 (17), 263-271.

## 225—Journal of the Washington Academy of Sciences.

- a. MCINTOSH, A., 1939.—“A new allocreadiid trematode, *Podocotyle shawi* n. sp., from the silver salmon.” 29 (9), 379-381.



## 226—Klinische Wochenschrift.

- a. JORES, A. & WOLTER, H., 1939.—“Über die Verwendbarkeit von Pyrethrum als Anthelminticum.” 18 (25), 885-889.

(226a) Jores & Wolter describe the action of pyrethrine on dogs, rats, enchytraeids, ascarids and rhabditids. Given orally nearly all the drug was recovered in the faeces. Its use against intestinal parasites is suggested, and the cure of a case of oxyuriasis is described. C.T.C.

## 227—Medical Parasitology and Parasitic Diseases.

- a. ZERCHANINOV, L. K., 1939.—“Le tableau du sang en présence de l'opisthorchose.” 8 (2), 210-220. [In Russian: French summary pp. 219-220.]
- b. DINNIK, Y. A. & DINNIK, N. N., 1939.—“Observations sur le développement des oeufs du *Trichocephalus trichiurus* (L.) dans le sol.” 8 (2), 221-228. [In Russian: French summary p. 228.]
- c. VARLAKOV, M. N., 1939.—“Matériaux pour l'investigation de l'effet exercé par certains anthelminthiques sur les lombrics et les ascarides du porc *in vitro*.” 8 (2), 229-234. [In Russian: French summary p. 234.]

(227a) Of 147 inhabitants of Tobolsk infected with *Opisthorchis felineus* 22% had some anaemia. R.T.L.

(227b) Dinnik & Dinnik carried out a series of experiments on the development of *Trichuris trichiura* eggs in soil. Tables are given showing the times of development to the infective stage at varying depths and in different environments, ranging from complete shade to areas exposed to the sun for the whole day. They found that, provided sufficient moisture was present, the development time in soil was the same as in pure water at a similar temperature. D.F.

(227c) From parallel series of anthelmintic tests *in vitro*, using ascarids and earthworms respectively, Varlakov concludes that it is unsafe to use earthworms since their responses differ considerably from those of parasitic worms. He finds that hexylresorcinol and thymol first depress the neuro-muscular system of ascaris, and then paralyse the worm. Semen-contra, camphor, resorcinol, male fern extract, and sulphate of soda all depress without paralyzing. Semenine, naphthaline, acriquine, magnesium sulphate, and Seignette's salt excite the neuro-muscular system of ascaris and interfere with co-ordination. Saline purgatives are better than others, for use with anthelmintics, since they themselves have some anthelmintic effect. Semenine has a marked effect on ascaris, differing from that of crude semen-contra. B.G.P.

## 228—Medicina de Hoy.

- a. SMILLIE, W. S., 1939.—“Recientes progresos en la terapeutica de la ancylostomiasis.” 4 (4), 174-178.

## 229—Memorias do Instituto Butantan.

- a. FONSECA, F. DA, 1939.—“*Brachylaemus fleuryi* Fons., 1939 (Fascioloidea, Brachylaemidae).” 12, 197-201. [Also in English pp. 203-207.]

(229a) *Brachylaemus fleuryi* Fons., 1939 from *Gallus domesticus* is redescribed and compared with other species. It resembles most closely *B. gallinus* but is larger, and the genital orifice is pretesticular. E.M.S.

## 230—Nature. London.

- a. HOVY, J. W. H., 1939.—“Oligodynamic control of eelworm (*Heterodera marioni*).” [Correspondence.] 144 (3650), p. 672.

(230a) According to Hovy 1 mg. per litre of silver nitrate kills the larvae of *Heterodera marioni*, a severe pest of tobacco in Southern Rhodesia, in  $\frac{1}{4}$  to  $\frac{3}{4}$  of an hour: it is, however, photosensitive and organic matter adsorbs the silver. Hovy claims that these difficulties are overcome by the use of silver proteinate. In a field experiment 7% of the treated plants were infected as compared with 90% of the controls. Only 500 g. per acre (i.e. 0.1 g. per plant) was used at a cost of 21/- per acre. Hothouse tests at the rate of 3 metric pounds per acre gave 100% control. R.T.L.

## 231—North American Veterinarian.

- a. SHAW, J. N. & HOWARTH, C. R., 1939.—“Immunity to salmon poisoning follows treatment of affected dogs with sulfanilamide.” 20 (5), 67-68.  
b. GLENNEY, W. C., 1939.—“Equine strongylosis.” 20 (10), p. 39.

(231a) Shaw & Howarth fed 3 dogs with spawned-out salmon containing large numbers of salmon poisoning fluke cysts, treated as soon as symptoms appeared with sulfanilamide and dosed again with parasitized salmon kidney, with the result that no symptoms of the disease appeared other than a rise in faecal egg count. Control dogs developed the disease after the initial feeding of infected salmon and one died 13 days later. These experiments were undertaken in order to show that immunity to salmon poisoning in dogs is produced by feeding parasitized salmon and treating with sulfanilamide when symptoms appear. J.W.G.L.

(231b) Glenney gives the clinical history of a horse which had been subject to intermittent colic for 3 years. Post-mortem lesions are described, and include the presence of strongyles in the large intestine. The intestinal mucosa contained large numbers of small haemorrhagic areas which on incision revealed strongyle larvae. J.W.G.L.

## 232—Nuova Veterinaria.

- a. MACCHIONI, I., 1939.—“Su di un frequente reperto di infestazione miliare da larve di strongilidi nel fegato degli ovini.” 17 (9), 19-26.

(232a) Macchioni describes small nodular lesions of parasitic origin frequently recovered from the liver of sheep suffering from verminous bronchopneumonia. The parasite recovered from the nodules resembles the larval stage of *Dictyocaulus filaria*. As the larvae recovered are seldom viable, and are often more or less completely calcified, the author thinks they may represent an arrested stage in the migration of the larvae through the portal system to the lungs. E.M.S.



## 233—Okayama-Igakkai-Zasshi.

- a. HIROMOTO, T., 1939.—“Chemische Untersuchungen des Blutes bei experimenteller Kaninchenschistosomiasis japonica.” 51 (8), 1633-1637. [In Japanese: English summary p. 1637.]

(233a) According to Hiromoto, the blood of rabbits suffering from Schistosomiasis japonica is characterized chemically by diminished total nitrogen and calcium, and by distinct increases in residual nitrogen, inorganic sulphuric, phosphoric, and lactic acids, and cholesterol. B.G.P.

## 234—Parasitology.

- a. D'ROZARIO, A. M., 1939.—“On four new species of cercariae. A contribution to Sewell's evolutionary scheme.” 31 (3), 285-298.

(234a) D'Rozario describes 4 species of cercariae from *Indoplanorbis exustus*, a common snail of Northern India. *Cercaria lühei* n. sp. and *C. gopyjungi* n. sp. are xiphidiocercariae of the Cercariae armatae group, which is redefined, the sub-groups “Daswan” and “Polyadena” being discarded. The 2 remaining species, *Cercaria ajmeri* n. sp. and *C. anasagari* n. sp. are furcocercous cercariae of Miller's Group A and Group C respectively. E.M.S.

## 235—Pathologica.

- a. LIDDO, S., 1939.—“Uova deformi di *Ascaris lumbricoides*.” 31 (572), p. 252.

## 236—Phytopathology.

- a. LINFORD, M. B. & YAP, F., 1939.—“Root-knot nematode injury restricted by a fungus.” 29 (7), 596-609.
- b. MACKIE, W. W., 1939.—“Breeding for resistance in Blackeye cowpeas to cowpea wilt, charcoal rot, and root-knot nematode.” [Abstract of a paper presented at the 1939 Annual Meeting of the Pacific Division of the American Phytopathological Society.] 29 (9), p. 826.
- c. THOMAS, H. E., 1939.—“The stem nematode disease of oats and peas.” [Abstract of a paper presented at the 1939 Annual Meeting of the Pacific Division of the American Phytopathological Society.] 29 (9), p. 827.

(236a) Linford & Yap describe a pot culture experiment designed to test the capability of 5 species of nematode-trapping fungi when added to soil to check the power of *Heterodera marioni* larvae to parasitize the roots of pineapple plants. The results show that after 15 months' growth, one of the fungi, *Dactylella ellipsospora*, restricted nematode injury to the plants to a moderate but statistically significant degree. It is indicated that further tests are necessary to estimate the efficiency under soil conditions of other species of nematode-trapping fungi. T.G.

(236b) By breeding from California Blackeye and Iron cowpeas, superior new varieties with greater disease resistance have been produced. Mackie also studied the genetical behaviour of various factors. M.T.F.

(236c) Thomas reports that in a small area in California where the stem eelworm *Tylenchus dipsaci* attacks oats, garden peas of the variety “Perfection” have shown signs of disease when following oats. Symptoms of attack on both oats and peas are described. Of 130 varieties of oats tested for

resistance to disease only 3 (Victoria, Capa and Pampa) were found to show no evidence of attack ; 68% showed low resistance, 18% medium resistance and 14% good resistance. T.G.

### 237—Prensa Médica Argentina.

- a. LORENZO, R. & BOTO, D., 1939.—“ Quiste hidático de las regiones supra-espinosa y supra-clavicular.” 26 (18), 883-887.
- b. PARDAL, R., 1939.—“ Hidatidosis múltiple del encéfalo.” 26 (20), 965-973.
- c. REYES, M. & DERQUI, M. M., 1939.—“ Quiste hidatídico del hombro.” 26 (29), 1379-1380.

### 238—Presse Médicale.

- a. RIST, E., 1939.—“ La sensibilisation par l'épreuve de Casoni cause d'erreur dans le diagnostic du kyste hydatique.” 47 (11), 201-203.

(238a) Rist quotes cases of 3 patients not suffering from hydatid who became sensitive to hydatid antigen as a result of repeated Casoni reactions. In each case the first reactions were negative, later ones positive. He emphasizes this as a possible source of error in diagnosis. P.A.C.

### 239—Proceedings of the Society for Experimental Biology and Medicine.

- a. FITZHUGH, O. G., 1939.—“ Liver regeneration in rats protected with xanthine against carbon tetrachloride poisoning.” 40 (1), 11-15.
- b. McNAUGHT, J. B., BEARD, R. R. & DeEDS, F., 1939.—“ Effects of sulfanilamide, phenothiazine, and thionol in experimental trichinosis.” 41 (1), 17-20.
- c. HSU, H. F. & CHOW, C. Y., 1939.—“ Development of *Clonorchis sinensis* eggs to cercaria stage in laboratory bred snails, *Bithynia fuchsiana*.” 41 (1), 158-160.
- d. ROSE, H. M. & CULBERTSON, J. T., 1939.—“ Diagnosis of echinococcal (hydatid) disease in man by intradermal reaction to rabbit *Cysticercus* antigen.” 41 (2), 426-428.
- e. DELAUNE, E., 1939.—“ Observations on the bovine blood picture in health and under parasitism.” 41 (2), 482-483.

(239a) 100 mg. of xanthine per 100 g. of body weight, subcutaneously injected into rats as a finely ground aqueous suspension, gave a relative protection to the livers against central necrosis caused by carbon tetrachloride given orally by a stomach tube in doses of 2 to 4 c.c. per kg. body weight. These experiments confirm the results of Neale & Winter [see Helm. Abs., Vol. VII, No. 214a (1938)]. No evidence was obtained that xanthine caused regeneration of cells in already damaged livers. R.T.L.

(239b) The number of *Trichinella* encysting in the muscles of rats is reduced by 55% by daily doses of sulfanilamide given at the rate of 0.96 g. per kg. of body weight. The continuous administration of Phenothiazine (0.14 g. per kg. body weight) over a period of 6 weeks reduced the infection by 74%. Thionol proved far less efficacious. R.T.L.

(239c) Hsu & Chow have studied the development of miracidia of *Clonorchis* to the cercarial stage in young laboratory bred specimens of *Bithynia fuchsiana*. They conclude that the cercariae reported from *Parafossarulus striatulus japonicus* by Yamaguti are correctly described as those of *Clonorchis*, but that the cercariae described by Faust are those of another fluke and that consequently *Melania hongkongensis*, *Parafossarulus sinensis* and *Bithynia longicornis* cannot be accepted as first intermediaries of *Clonorchis* without definite experimental proof.

R.T.L.

(239d) Rose & Culbertson have endeavoured to diagnose hydatid in man by means of the intradermal test, using as antigen a saline extract of *Taenia pisiformis* cysts from rabbits. Four patients known to harbour hydatid gave a strong reaction, characterised by wheals which began to form 5 minutes after injection and reached a maximum in 15 minutes. The wheals measured up to 4 cm. in diameter, had pseudopodia and were surrounded by a zone of erythema. Fading was usually complete in 12 hours. Normal subjects used as controls gave only very slight reactions that were considered to be negative.

P.A.C.

(239e) Delaune gives the average total red and white cell blood counts and differential white cell counts of 6 normal Jersey and Holstein calves and 5 adult animals. Experimental infection of a calf with a pure nodular worm culture resulted in a sharp drop of 2.5 million red cells and an increase of 5,000 total white cells 5 days after administration of the larvae. A similar blood picture was obtained, though not so sharply, in 6 further animals which had a mixed infection of *Bunostomum phlebotomum* and *Oesophagostomum radiatum*. A natural occurring case of parasitism in a Brahma heifer 1½ years old also showed a similar blood picture. The increase in white cells was due to an increase in the neutrophils.

J.W.G.L.

#### 240—Proceedings of the United States National Museum.

- a. GOWER, W. C., 1939.—“A new trematode from the loon, *Gavia immer*, and its relationship to *Haematotrephus fodiens* Linton, 1928.” 87 (3071), 139-143.

(240a) A description of *Amphimerus lintoni* n. sp. from the pancreas of *Gavia immer* is given. As in *A. elongatus* there is a total absence of oral sucker. *Diasia fodiens* (Linton, 1938) is redescribed from the same host.

R.T.L.

#### 241—Przegląd Weterynaryjny.

- a. CZELNY, K., 1939.—“Wągrzyca u ludzi i wągrzyca świń w Polsce w oświetleniu statystycznym.” 54 (2), 110-117.

(241a) [Statistics of cysticerciasis in man and pigs in Poland.]

#### 242—Public Health Reports. Washington.

- a. SAWITZ, W., ODOM, V. L. & LINCICOME, D. R., 1939.—“The diagnosis of oxyuriasis. Comparative efficiency of the NIH swab examination and stool examination by brine and zinc sulfate floatation for *Enterobius vermicularis* infection.” 54 (26), 1148-1158.
- b. FOLAN, J. P., 1939.—“The preparation and cleaning of the NIH anal swab used in the diagnosis of oxyuriasis.” 54 (30), 1392-1395.



(242a) Sawitz, Odom & Lincicome found that of 136 white children 96.3% were infected with *Enterobius vermicularis*. Of 131 the first NIH swab detected an incidence of 71.8%, whilst faeces examinations by brine and zinc sulphate flotation detected an incidence of 13.7 and 17.6% only. Further swab examinations up to 7 in number revealed additional infected children, thus showing that repeated negative swab examinations are necessary to diagnose absence of pinworm. M.R.Y.

(242b) The author describes the NIH swab, its use and method of cleaning. For the latter the swab is soaked for 24 to 48 hours in 10% solution of trisodium phosphate which distorts the outer layer of the shell of the pinworm ovum, so that ova remaining from a previous use of the swab would be easily recognised. M.R.Y.

#### 243—Queensland Agricultural Journal.

- a. ROBERTS, F. H. S., 1939.—“Parasites of poultry.” 52 (1), 4-26.

(243a) In a semi-popular manner Roberts summarizes our knowledge of poultry parasites in Queensland, dealing with occurrence, life cycle, symptoms and control. Flukes and tapeworms are considered briefly, the roundworms more fully because they are of greater economic importance. Arthropod parasites are also dealt with. P.A.C.

#### 244—Revue de Chirurgie.

- a. TOOLE, H., 1939.—“Contribution à l'étude du traitement chirurgical des kystes hydatiques.” 58 (2), 121-133.

#### 245—Revue de Zoologie et de Botanique Africaines.

- a. BERGHE, L. VAN DEN & GILLAIN, G., 1939.—“Sur un genre nouveau de Filarioidea chez l'éléphant au Congo Belge.” 32 (3 4), 388-393.

(245a) Van den Berghe & Gillain describe new adult filarial worms from the African elephant in Belgian Congo, which are designated *Loxodontofilaria loxodontis* n. g., n. sp. and are the parent forms of *Microfilaria loxodontis* van den Berghe, 1937. The new species resembles *Filaria (sensu lato) gossi* Baylis, 1923, which is therefore also included in the new genus *Loxodontofilaria*. *L. gossi* differs from *L. loxodontis* principally in the dimensions of the oesophagus and in the position of the vulva. Only the females of either species are known. J.J.C.B.

#### 246—Riforma Medica.

- a. MOLINARI, G., 1939.—“Ernia diaframmatica destra simulante una cisti idatidea.” 55 (30), p. 1148.

#### 247—Science.

- a. BERGER, J. & ASENJO, C. F., 1939.—“Anthelmintic activity of fresh pineapple juice.” 90 (2335), 299-300.

(247a) Although fresh pineapple juice occurs as an anthelmintic in folk medicine there is no reference to its use in scientific literature. Berger & Asenjo report that living *Ascaris lumbricoides* and *Macracanthorhynchus*

*hirudinaceus* from the pig were completely digested in 24 hours when incubated at 35° to 40° C. with freshly squeezed pineapple juice, whereas controls remained active in normal saline and in heat-inactivated juice. R.T.L.

#### 248—*Transactiones Societatis Pathologicae Japonicae.*

- a. HASHIMOTO, S., 1939.—“A patho-histological research on the pituitary bodies, especially the anterior lobes of dogs infected with *Dirofilaria immitis*. (Report I).” 29, 534-537.
- b. YOKOGAWA, S. & KOBAYASHI, H., 1939.—“On Pandit's reaction of serum of elephantiasis against *Microfilaria bancrofti*.” 29, 537-541. [In Japanese.]
- c. HARA, S., 1939.—“Über die pathologische und histologische Untersuchung des inneren Ohrs der Schmarotzerhunde von *Dirofilaria immitis*.” 29, 542-544. [In Japanese.]

(248a) Hashimoto, examining the pituitary glands of 8 dogs infected with *Dirofilaria immitis*, reports a greater concentration of microfilariae in the anterior lobe. In some cases this lobe showed oedema, an increase of connective tissue, eosinophilic infiltration, and reduced basophiles. No marked changes occurred in the middle and posterior lobes. B.G.P.

#### 249—*Transactions of the Royal Society of Edinburgh.*

- a. MOZLEY, A., 1939.—“The fresh-water Mollusca of the Tanganyika Territory and Zanzibar Protectorate, and their relation to human schistosomiasis.” 59 (3), 687-744.

(249a) In this important monograph Mozley gives a systematic account of the freshwater mollusca of Tanganyika and Zanzibar and deals in turn with the geographical and local conditions and types of aquatic environment which affect their distribution. He then proceeds to discuss the value of various means of control in relation to schistosomiasis, e.g., drainage, filling in, flushing, chemical treatment, removal and promotion of vegetation, natural enemies and education and concludes with a chapter on representative molluscan habitats. R.T.L.

#### 250—*Transactions of the Royal Society of Tropical Medicine and Hygiene.*

- a. KNOTT, J., 1939.—“A method for making microfilarial surveys on day blood.” 33 (2), 191-196.

(250a) Knott describes a method of examining day blood for microfilariae which is useful for making microfilarial blood surveys on school children. 1 c.c. of blood is drawn from the cubital vein between 9 a.m. and 10 a.m. and laked immediately in 10 c.c. of 2% formalin solution in a conical-tip centrifuge and allowed to sediment. After 12 to 24 hours the sediment is spread on a glass slide and stained with methylene blue and eosin. The results of examining blood from a group of 155 children by this method and by the standard method of taking a 20 c.mm. drop of blood at night were found to be comparable. J.J.C.B.

## 251—Veterinary Bulletin. U.S. Army. Washington.

- a. HUNSBERGER, R. S., 1939.—“Worm in the eye.” 33 (1), p. 66.

(251a) Hunsberger describes the removal of a worm from the eye of a horse by incising with a cataract knife just above the ventral border and just off the inner canthus. The worm was about 2 inches long and was believed to be a specimen of *Setaria equina*. J.W.G.L.

## 252—Veterinary Medicine.

- a. TAYLOR, E. L., 1939.—“Grazing hygiene with respect to parasitic diseases.” 34 (5), 280-285.

## 253—Veterinary Record.

- a. TAYLOR, E. L., 1939.—“The diagnosis of helminthiasis by means of egg counts, with special reference to red-worm disease in horses.” 51 (29), 895-898.

(253a) In order to standardize faecal egg counts in domesticated animals, Taylor describes a method which he suggests be adopted by clinicians so that comparison of infections would be more easily accomplished. The method is based on a 3 g. sample shaken up with 42 c.c. of water, and the microscopic examination of 0.15 c.c. samples. The number of eggs per g. is the number of eggs per 0.15 c.c. of diluted faeces multiplied by 100. A discussion is included on the interpretation of results, and the borderline “pathological” and “normal” counts are given tentatively as:—2,000 to 6,000 eggs per g. for parasitic gastritis in lambs and 300 to 600 eggs per g. in cattle; for strongylosis in equines 1,500 to 2,500; for fascioliasis at 300 to 600 in sheep, and 100 to 200 eggs per g. in cattle. J.W.G.L.

## 254—Vida Nueva.

- a. IBARRA PÉREZ, R. & FARIÑAS GUEVARA, P., 1939.—“Parasitismo intestinal en dermatosifilografía.” 44 (1), 43-51. [English summary p. 51.]

## NON-PERIODICAL LITERATURE.

255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
Osaka, 1939, 2 vols.

- a. OZAKI, Y., 1939.—“A new blood-fluke *Hapalorhynchus yoshidai*.” 1, 29-37. [In Japanese: English summary pp. 34-35.]

(255a) *Hapalorhynchus yoshidai* n. sp. is described by Ozaki from the blood vessels of *Ocadia sinensis* and is differentiated from *H. gracilis* Stunkard, 1923. R.T.L.



255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
[cont.]

- b. ASADA, J., 1939.—“A new species of *Echinostoma* and its life history.” 1, 39-69. [In Japanese.]
- c. OKABE, K., 1939.—“A new cercaria and a new trematode cyst found in *Katayama nosophora yoshidai* Bartsch collected in Yamanashi Prefecture.” 1, 71-77. [In Japanese: English summary pp. 76-77.]
- d. ANDO, R., 1939.—“Survey of the work done by Japanese researchers on the family Echinostomidae.” 1, 78-84. [In Japanese.]
- e. MIYATA, J., 1939.—“Cysticercoïds and nematode larvae found in rat fleas on ships at Kobe.” 1, 85-99. [In Japanese.]
- f. MIYATA, J., 1939.—“A study of the life-history of *Protopirura muris* (Gmelin) from rats, with special reference to intermediate hosts.” 1, 101-136. [In Japanese.]
- g. FUKUI, T. & MORISHITA, T., 1939.—“Additional observations on two species of Acanthocephala.” 1, 137-139. [In Japanese.]

(255b) Asada has found a new cercaria in *Lymnaea japonica* (Jay) and *L. (Galba) pervia* Martens in the vicinity of Tokyo. This cercaria encysts experimentally not only in *Bufo vulgaris*, *Rana nigromaculata*, *R. rugosa* and *R. catesbiana* but also in young salamanders, *Hynobius naevius* and *H. nebulosus*, and a newt, *Diemyctylus pyrrhogaster*. When fed to white rats and dogs the encysted cercaria developed into adult egg-laying echinostoma in about 14 days. These animals are also naturally infected. The trematode is named *Echinostoma hortense* n. sp. R.T.L.

(255c) To the 7 species of cercariae already reported in *Katayama nosophora* Okabe adds a new cercaria not yet named. He also describes trematode cysts in groups in the sexual gland which he believes may belong to Coitococciidae Ozaki. R.T.L.

(255e) On examining fleas, *Ceratophyllus anisus*, *C. fasciatus*, *Leptopsylla musculi* and *Xenopsylla cheopis*, on 4 species of rats collected on board ships at Kobe, the writer found 3 species of parasites which make rat fleas their intermediate hosts, viz., cysticercoïds of *Hymenolepis diminuta* and *H. nana* var. *fraterna* Stiles, and the encysted larvae of *Protopirura muris*. The cysticercoïd of *H. diminuta* parasitized *C. fasciatus*, *L. musculi*, etc., the cysticercoïd of *H. nana* occurred in *C. fasciatus* and the encapsulated nematode larva in *X. cheopis*. The cysticercoïd of *H. diminuta* was found in 2 out of 256 fleas examined (0.78%), and that of *H. nana* in 1 out of 256 fleas (0.39%). The encapsulated nematode larvae were present in 3 out of 256 fleas (1.17%). Rats on board ships were examined for adult worms, and *H. diminuta* was found in 93 out of 303 rats (30.69%), *H. fraterna* in 82 out of 303 (27.06%), and *P. muris* in 31 out of 259 (11.97%). R.T.L.

(255f) Miyata found *Protopirura muris* occasionally in the stomach of rats collected on board ships and, rarely, on land rats in Kobe. When foods containing eggs of the nematode were introduced to *Periplaneta americana*, *Phylloromia germanica*, *Tinea granella*, *Ceratophyllus anisus*, *C. fasciatus*, *Leptopsylla musculi* and *Xenopsylla cheopis* the larvae, casting off their skin, gradually developed into encapsulated larvae in the bodies of these 7 species of insects within 18 to 20 days. R.T.L.

(255g) This paper deals with *Porrorchis elongatus* Fukui, 1929 and *Bolbosoma turbinella* (Diesing, 1851). R.T.L.

255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
[cont.]

- h. MATUDA, S., 1939.—“Frequency and distribution of some helminths from *Rana nigromaculata* Hallowell collected in the vicinity of Osaka.” 1, 140-176. [In Japanese : English summary pp. 175-176.]
- i. MATUDA, S., 1939.—“Literature on methods for detection of ova of parasites and their application in Japan.” 1, 177-210. [In Japanese : English summary p. 210.]
- j. KŌBA, K., 1939.—“Second intermediate hosts of lung flukes.” 1, 277-286. [In Japanese.]
- k. KATSUMIYA, S., 1939.—“Anaemia caused by *Diphyllbothrium latum*.” 1, 300-302. [In Japanese.]
- l. YOSHIDA, T. et al., 1939.—“A statistical study of sufferers from *Ascaris* and hookworm over a period of five years ; compiled at the Fuse Laboratory (Osaka Imperial University).” 1, 303-325. [In Japanese.]
- m. TOYODA, I., 1939.—“A few cases of disease caused by helminths.” 1, 326-333. [In Japanese.]
- n. OKAMOTO, F., 1939.—“A case of helminths entering the ear.” 1, 334-337. [In Japanese.]
- o. MINAMI, H., 1939.—“Some unusual clinical cases of diseases caused by cestodes.” 1, 338-340. [In Japanese.]
- p. SHIRAIISHI, T., 1939.—“The importance of ridding school children of intestinal worms as a health measure.” 1, 341-357. [In Japanese.]
- q. FUKUI, T., 1939.—“The future of parasitology.” 1, 365-368. [In Japanese.]
- r. UYENO, M., 1939.—“Relationship of limnology to medical science.” 1, 802-821. [Helminths pp. 811-817.] [In Japanese.]
- s. MAKINO, S., 1939.—“Chromosomes, particularly sex chromosomes, of trematodes.” 1, 1042-1048. [In Japanese.]
- t. PEARSE, A. S., 1939.—“Parasite.” 2, 3-7.

(255j) While studying the Japanese Potamonidae as second intermediate hosts of *Paragonimus* in Formosa, Koba had occasion to revise the name of a certain species. He has now completed a list of decapod crustaceans found throughout the world as second intermediate hosts. This list comprises 3 orders, 8 genera and 22 species and subspecies. R.T.L.

(255t) In modern times much confusion has developed in the use of the terms “parasite”, “commensal” and “symbiont.” Pearse considers the terminology used by botanists, zoologists and phytopathologists. Parasites are not necessarily degenerate but are usually specialized. They tend to be host specific. Hosts and parasites are mutually tolerant and if they are adapted seldom destroy each other. The terms parasites, commensals and symbionts refer definitely to relations with hosts and not to qualities of animals associated with hosts. They all live in intimate association with their hosts. Parasites are usually somewhat injurious : commensals usually benefit their hosts and receive benefits in return. A parasite in a different host or individual, or even at a different time, may become a commensal or a symbiont. For a small animal found in the enteron or on the skin, and it is not clear if its relations are beneficial, indifferent or injurious, Pearse suggests that the term “consors” (plural “consortes”) should be used. R.T.L.



255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
[cont.]

- u. LINTON, E., 1939.—“Casual reflections on the origin of helminth characteristics.” 2, 95-99.
- v. CORT, W. W., 1939.—“Schistosome dermatitis, a public health problem in the United States.” 2, 101-107.
- w. CAWSTON, F. G., 1939.—“Some interesting scientific data brought to light during the study of schistosomiasis.” 2, 109-111.
- x. AFRICA, C. M. & SANTA CRUZ, J. Z., 1939.—“Eggs of *Schistosoma japonicum* in the human heart.” 2, 113-117.
- y. MIYAJIMA, M., 1939.—“Combating schistosomiasis in Japan.” 2, 123-128.
- z. WITENBERG, G. G. & ECKMAN, F., 1939.—“On the classification of the trematode genus *Prosthogonimus*.” 2, 129-143.
- ba. TUBANGUI, M. A. & AFRICA, C. M., 1939.—“The systematic position of some trematodes reported from the Philippines.” 2, 145-153.

(255v) Cort describes the dermatitis which is typically produced by non-human schistosome cercariae and lists the cercariae and their molluscan hosts which are implicated in dermatitis in the United States. “Swimmer’s itch” was studied in the Douglas Lake region, Michigan, where 4 species of dermatitis-producing cercariae are known, but the most important of these is *Cercaria stagnicolae*. This cercaria occurs seasonally in its snail host, *Stagnicola emarginata*, in which it has a peak incidence about the middle of July when the tourist season is at its height. Satisfactory methods of control have not yet been developed in this region. J.J.C.B.

(255x) Africa & Santa Cruz report the histopathology of a case in which the eggs of *Schistosoma japonicum* associated with typical pseudotubercles occurred in the myocardium from the intraventricular septum of the heart of an adult Filipino. Eggs were also found in the intestinal wall, liver, kidney, lung and brain. The cardiac lesions produced by schistosome and heterophyid eggs are contrasted. R.T.L.

(255y) The methods in use in Japan for the prevention of schistosomiasis are (i) disposal of eggs. Privies have been remodelled so as to kill the eggs by natural fermentation. (ii) Prevention of skin invasion by avoiding swimming and wading and by oiling the skin. (iii) Limitation in the use of oxen in agriculture. In endemic regions grants have been made to families to replace oxen by horses. (iv) Discovery and treatment of infected persons by periodic examination of the faeces of the local populations. (v) Extermination of intermediate hosts by improvements in marshy lands, banking of rivers to prevent flooding, the distribution of quicklime, and spraying with boiling water. (vi) Education of the public in prevention by lectures, motion pictures, posters and pamphlets. R.T.L.

(255z) Of the 23 species of *Prosthogonimus* described only 7 are considered valid, viz., *P. cuneatus*, *P. dogieli*, *P. ovatus*, *P. pellucidus*, *P. putschkowskii*, *P. rudolphii* and *P. vitellatus*. A key to these species is given and reasons are stated for discarding the others. The paper concludes with a list of hosts and data on the geographical distribution of the recognized forms. R.T.L.

(255ba) [This paper is reprinted from Philipp. J. Sci., 1938, 67, 117-125. See Helm. Abs., Vol. VII, Part 5.]



255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
[cont.]

- bb. BHALERAO, G. D., 1939.—“A brief survey of the development of the knowledge of trematode fauna of India.” 2, 155-159.
- bc. KHALIL, M., 1939.—“On the bionomics of the free living phase of *Cercaria heterophyes*.” 2, 161-166.
- bd. YAMASHITA, J., 1939.—“On the position of the vitellaria of *Glythelmins rugocaudata* (Yoshida), the trematode of the frog.” 2, 167-171.
- be. YAMASHITA, J., 1939.—“Studies on the Echinostomatidae. Part V. On the identity of *Paryphostomum radiatum* Dietz, *P. segregatum* Dietz, and *Echinostomum lobulatum* Odhner.” 2, 173-179.
- bf. FUKUI, T. & OGATA, T., 1939.—“On three species of trematodes from *Ocadia sinensis* (Gray).” 2, 187-202.
- bg. JOYEUX, C. & BAER, J. G., 1939.—“Recherches biologiques sur quelques cestodes Pseudophyllidea.” 2, 203-210.
- bh. WOLFFHÜGEL, K., 1939.—“Ergebnisse von Nematoparataeniidae (car: folo. Poche) Fuhrmann.” 2, 211-220.

(255bc) *Heterophyes heterophyes* which lives in man, dog, cat and the Egyptian kite can be experimentally obtained in the rat, chicken and sea lion. The molluscan intermediate host is *Pirenella conica*, while different species of the fishes *Mugil* and *Tilapia* act as second intermediaries. The encysted cercaria completes its development in the fish host in 20 days in summer. The parasite grows in size in the definitive host up to the 20th day, but eggs begin to appear in the faeces in 9 to 11 days in experimental animals. The cercariae are liberated from the snails from June to November, the maximum being reached in August. Heat plays an important rôle in the issue of the cercariae from the infected snail, as many as 488 cercariae were discharged from a single snail between 11 a.m. and 1 p.m. The cercaria has a definite phototaxis. The infection of the fish is apparently induced by the gland secretion. The snail intermediaries are usually found in the shallow area of brackish lakes in less than 20 cm. of water.

R.T.L.

(255bf) Fukui & Ogata describe for the first time in English a pronoccephalid trematode, *Diaschistorchis takahashii* from the stomach and oesophagus of the turtle *Ocadia sinensis* [original description, in Japanese, in Botany and Zoology, 4, 1707-1710]; also *Polystomoides microrchis* and *P. ocadiae* from the oral cavity and the urinary bladder respectively of the same host [both described, in Japanese, in Zool. Mag., Tokyo, 48, 765-770. See Helm. Abs., Vol. V, No. 684j].

E.M.S.

(255bg) Joyeux & Baer find that some pseudophyllid cestodes confer on the host a protection against re-infestation, which may last some time after the loss of the parasite. *Diphyllbothrium latum* may confer such protection for a year or longer, *Ligula intestinalis* for 20 to 30 days, while with *Diphyllbothrium erinacei* 2 infestations of different dates can develop together. Re-encystment of plerocercoids is often followed by division into 2 or more parts; there is, however, no asexual multiplication, only the portion containing the scolex being capable of further development.

E.M.S.

(255bh) [This is a summary of a paper by the same author which appeared in Z. InfektKr. Haustiere, 1938, 53, 9-42. See Helm. Abs., Vol. VII, No. 150b.]

255—VOLUMEN JUBILARE PRO PROFESSORE SADAŌ YOSHIDA.  
[cont.]

- bi. ACKERT, J. E., 1939.—“Notes on four Kansas cases of human tapeworm infestation.” 2, 221-224.
- bj. IWATA, S., 1939.—“The classification list of Cestoidea in Japan.” 2, 225-247.
- bk. HALL, M. C. & CRAM, E. B., 1939.—“Studies on oxyuriasis. XVII. The special and peculiar nature of oxyuriasis.” 2, 249-267.
- bl. TRAVASSOS, L., 1939.—“Sur un *Trichostrongylus* parasite de la *Cavia aperea*.” 2, 269-270.
- bm. LENT, H. & FREITAS, J. F. TEIXEIRA DE, 1939.—“Some remarks on the genus *Paraspidodera* Travassos, 1914 (Nematoda: Subuluroidea).” 2, 273-278.
- bn. PENSO, G., 1939.—“Il ciclo di sviluppo degli ossiuri.” 2, 279-283.
- bo. YOKOGAWA, S., 1939.—“The spread of *Wuchereria bancrofti* and its relationship to the human flea, *Pulex irritans*.” 2, 285-290.
- bp. MÖNNIG, H. O., 1939.—“*Cooperia yoshidai* n. sp. a nematode parasite of the reedbeek, *Redunca arundinum*.” 2, 291-294.
- bq. BLACKLOCK, D. B., 1939.—“The development of *Onchocerca volvulus* in *Simulium damnosum*.” 2, 295-306.
- br. ORTLEPP, R. J., 1939.—“Observation on *Ascaris phacochoeri* Geddoelst, 1916, a little known nematode parasite from the wart hog.” 2, 307-309.

(255bj) 155 species of cestodes are listed, with hosts and location in the host. Eight of the species noted were found in animals which had been imported into Japan. R.T.L.

(255bl) *Trichostrongylus yoshidai* n. sp. is described by Travassos from the small intestine of *Cavia aperea* in the State of São Paulo, Brazil. R.T.L.

(255bm) Lent & Freitas draw attention to the extent to which recent writers have been misled by Hall in 1916 regarding the systematic position of *Ascaris uncinata* Rudolphi, 1819. They are of opinion that Travassos was correct in creating the genus *Paraspidodera* for Rudolphi's species and they regard *Heterakis uncinata* Schneider and *Subulura uncinata* as synonyms of it. The only other valid species of the genus is Morgan's *P. sellsi*. R.T.L.

(255bo) Although the embryos of *Wuchereria bancrofti* are taken into the midgut of the flea with the imbibed blood, development does not go beyond the shedding of the sheath with the clotting of the blood. Yokogawa is convinced that the human flea plays no part in the spread of this filaria infection. R.T.L.

(255bp) Mönnig describes *Cooperia yoshidai* n. sp. from the reedbeek *Redunca arundinum* in the Transvaal. This species can be distinguished from other species of the genus by the appearance. There are posterior and medial flanges, the latter one touching its fellow on the other spicule. Distally there are a number of prominent ridges running dorso-ventrally. P.A.C.

(255bq) [This is a republication of part of a paper which appeared in Ann. Trop. Med. Parasit., 1926, 20, 1-49.]

(255br) The original description of *Ascaris phacochoeri* by Geddoelst was based on 2 females only. Ortlepp has studied further material and now describes the male. R.T.L.



255—VOLUMEN JUBILARE PRO PROFESSORE SADA O YOSHIDA.  
[cont.]

- bs. MATUDA, S., 1939.—“Some abnormal eggs of *Ascaris lumbricoides* Linnaeus.” 2, 311-314.
- bt. CAMERON, T. W. M. & PARNELL, I. W., 1939.—“Observations on the control of bursate nematodes by the chemical treatment of manure.” 2, 319-329.
- bu. VAN CLEAVE, H. J., 1939.—“An analysis of hook measurements in the Acanthocephala.” 2, 331-336.
- bv. MCCOY, O. R., 1939.—“Immunity to trichiniasis in rats.” 2, 339-341.
- bw. CHANDLER, A. C., 1939.—“The nature of local immunity in parasitic infections.” 2, 343-364.
- bx. BARTSCH, P., 1939.—“The molluscan intermediate hosts of the Asiatic blood fluke, *Schistosoma japonicum*, found in the Japanese Empire.” 2, 629-648.

(255bs) Matuda classifies the abnormal eggs of *Ascaris lumbricoides* as (i) eggs united by the same albuminous membrane, (ii) eggs deformed in diameter, (iii) eggs with deformed shell, (iv) eggs without albuminous membrane. Each category is further subdivided. R.T.L.

(255bt) Cameron & Parnell briefly review methods of controlling bursate nematodes, arguing that control is based on the adequate breaking of the life-cycle at some point. In the case of the human hookworm it is based principally on sanitation. In the case of animals and the rural human population, however, where the faecal material is used as manure, there remains only the treatment of the excrement. Physical means (e.g. heat) or chemical means (e.g. the adding of chemicals lethal to some stage of the developing eggs and larvae) may be employed. This latter is the line of research undertaken by the authors; as a test object the eggs of horse sclerostomes were used. The drugs tested are enumerated in order of effectiveness, together with percentage concentration necessary for sterilization. Notes are included of the varied effects on the eggs and larvae of various groups of chemicals. J.W.G.L.

(255bu) Unselected single hook measurements have no objective validity as a specific character in Acanthocephala, for physical factors of orientation render it necessary to consider the location and perspective of hooks being compared or contrasted as specific characters. It is not enough to choose for measurement hooks at a given level on the proboscis. The orientation of the proboscis must be considered. R.T.L.

(255bv) McCoy discusses the work which has been carried out on the immunological responses of rats to infection with *Trichinella spiralis*. The resistance which is developed in rats is directed against the intestinal phases. The fact that immunity can be transferred passively to other rats indicates that antibodies are developed as a result of invading larvae. He suggests that this antibody sensitizes the intestinal wall so as to make this position unfavourable for the invading worms. P.A.C.